

BYRNELOOBY

AN **ayesa** COMPANY

IRELAND | UK | UAE | BAHRAIN | KSA

Booth Ventures Waste (Midlands) Ltd

Report No. 5430-BLP-R-004-02 – APP B

August 2023

Sandown Quarry Landfill

Dust and Emissions Management Plan – Appendix B to
report 5430-BLP-R-004-02



BYRNELOOBY
AN **ayesa** COMPANY

Document Control

Document: Dust and Emissions Management Plan – Appendix B to report
5430-BLP-R-004-02

Project: Sandown Quarry Landfill

Client: Booth Ventures Waste (Midlands) Ltd

Report Number: 5430-BLP-R-004-02 – APP B

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
01	August 2023	Final	<i>Dan King</i>	<i>Phil Sootney</i>	<i>John Baxter</i>

Disclaimer: Please note that this report is based on specific information, instructions and information from our Client and should not be relied upon by third parties.

Contents

TABLES

Table 1	Destination Waste Types	3
Table 2	Sensitive Receptors	10
Table 3	Types of Receptors	11
Table 4	Dust Fugitive Emission Risk Assessment and Management Plan	14
Table 5	Quantitative Dust Monitoring Locations	18

APPENDICES

Appendix A	Dust Compliant Form	
------------	---------------------	--

1 Introduction

1.1 Background

This Dust and Emissions Management Plan has been prepared in support of a permit application for Sandown Quarry Landfill (the Site). The Site is located near Aldridge and will be operated by Booth Ventures Waste (Midlands) Ltd. The site's location is shown on drawing referenced ESID 1 included with this permit application.

The site is surrounded by a number of roads, industrial, commercial and residential properties, woodland which may be considered receptors. The purpose of this Dust and Emissions Management Plan is to identify which aspects of the landfilling operation are likely to cause a potentially harmful emission of uncontrolled dust and how these emissions will be minimised.

A copy of this Dust and Emissions Management Plan will be included in the site's Environmental Management System (EMS) held at the Site Office and all members of staff will have access to this document.

This report makes reference to the dust and emissions management plan template provided by the Environment Agency, specifically the following sections:

- Dust and Particulate Management
 - Responsibility for Implementation of the dust management plan
 - Sources and control of fugitive dust
 - Potential pathways and receptors to fugitive dust
 - Fugitive dust risk assessment
- Visual and Quantitative Monitoring
- Community Engagement, Reporting and Contingencies

2 Dust and Particulate Management

2.1 Responsibility for Implementation

The site manager would be responsible for implementing the dust management plan. Additional support will be provided by the Technical Competent Managers (TCMs) within the Booth Ventures Waste (Midlands) Ltd organisation (Booth Ventures). Provision of appropriate TCMs is necessary to demonstrate to the Environment Agency that the applicant is a fit and proper person, a test all prospective environmental permit holders must pass to be granted a permit. The site manager and/or TCM would be responsible for the training of site staff.

Booth Ventures operates an Environmental Management System (EMS) that has attained 14001 accreditations at their other active sites and head office, it is intended that the EMS would include Sandown Quarry and that the dust management plan would form part of the EMS.

All staff to be employed on site would be given training and instruction on implementing the dust management plan. Training will be part of the initial induction process and reviewed annually.

All site staff would be responsible for visual monitoring of dust and would be instructed on appropriate reporting and actions.

All third-party contractors would be required to be inducted; the induction process would include their responsibility concerning compliance with the dust management plan.

2.2 Proposed Operations

Sandown Quarry is part of a larger area of extraction, which includes the currently active Atlas and Aldridge Brickworks excavating mudstone / clay for brickwork manufacture. Clay extraction has been taking place locally since the early to mid-1880's (report 5430-BLP-R-003-02).

This permit application proposes to restore the current void with suitable wastes to tie in with adjoining ground levels in accordance with the restoration proposed in the current planning application.

This application proposes the deposit of a combination of inert waste and restricted types of non-hazardous waste that have low organic content and low levels of leachable contaminants.

The proposal summary is as follows:

- Installation of a suitable artificial geological barrier (where required)
- Landfilling using low pollution potential material (Qualifying Materials), non-hazardous wastes
- Restoration of the site to similar levels to the surrounding ground levels, with a gentle slope for surface water management; and
- Landscaping of the site to a suitable restored surface.
- Processing of waste – crushing / screening

Processing Activity

The landfilling will restore the land back to surrounding levels and it is anticipated that approximately 5% of the wastes imported will be suitable for processing (crushing and/or screening) utilising mobile plant.

The processing activity will be located within the base of the void during the operational life of the landfilling that will reduce significantly the effects of wind-blown emissions, indicative locations are presented on drawings ESID 4, ESID 5A and 5B. Initially, the activity will be ~40m below adjacent ground level in the eastern area of the void (ESID 4 and 5A) and will incrementally moved and re-positioned above the infill in a similar area / location up to year 6. At which point the processing activity will still remain at least 23m below adjacent ground level (these assumptions are approximations based on predicted volumes / tonnages and the outline phasing / infilling plans).

In the proposed locations depicted, it is anticipated that it will take ~15 years to reach ground level, at that point in time there will be a separation distance of ~60 to the Daw End canal to the east and ~505m to the Swan Pool SSSI to the west.

It is noted that the aggregate processing activity will be conducted on a “campaign basis” and hence is infrequent in operation, and of a short duration only.

3 Potential Dust Emissions Sources

3.1 On-site Dust Emission Sources

A summary of the wastes to be deposited is shown below in Table 1 with the approximate tonnage (per year).

Table 1 Destination Waste Types

General Waste Description	Approximate Input	Location
Inert & non-hazardous (non-biodegradable) soils and excavations wastes	700,000t/y	Direct to Sandown Quarry Landfill

The wastes to be received will include soils, construction and demolition wastes. Under certain environmental conditions, i.e. dry and windy, such wastes can present a risk of fugitive dust emissions during transit and deposition and following placement. Fugitive dust emissions can potentially arise from the following site activities:

- Transport of waste to and upon the site;
- Unloading / deposition of waste material;
- Wind-blown dust accumulated on site surfaces;
- placement of waste by on-site plant; and,
- Vehicle movements on dusty roads.

Fugitive dust may present a dust nuisance to surrounding human receptors or cause an adverse impact if excessive deposits settle on sensitive habitats and smother sensitive plant life or surface water receptors as accumulated sediment.

3.2 Off-Site Dust Emissions Sources

The site is located in an area of significant industrial activity, brickworks, chemical industries, landfills (two active sites within 300m) all of which have the potential to generate dust emissions. Other sources of off-site dust include the surrounding roads.

3.3 Control Measures for On-site Dust Emissions

3.3.1 Waste Delivery

Wastes would be delivered to the site by third party standard road-going HGV tipper wagons, which will be subject to appropriate emission standards and regulated as would be required by all road-going HGVs.

The transport of waste is regulated by Duty of Care code of practice issued under section 34(7) of the Environmental Protection Act 1990, this code requires that waste is stored securely to prevent

escape during transport. Consequently, the vast majority of vehicles will arrive at site with sheeted covers which will be removed to allow inspection of wastes at the site booking-in office.

The HGVs will (unless the waste is rejected) transport the waste along internal roads to the deposit area where a second inspection will be undertaken by site staff prior to the placement of the waste by site plant.

Site staff will enforce strict waste acceptance protocols to manage the deposit of potentially dusty wastes. All waste will be subject to pre-acceptance checks to confirm suitability before the waste arrives on site (this will be regulated by the environmental permit). On site verification checks will confirm acceptability, these checks will consist of reviewing associated paperwork and inspection of the load. It is unlikely that any specific dusty loads will be received, however if the load is identified as unsuitable prior to deposit it will be rejected. If the load is identified as having the potential to generate dust at the point of deposit it would be damped with water spray prior to placement or reloading or rejection. In both cases all subsequent loads from the same source will be suspended until confirmed suitable.

All hauliers would be informed of the site rules at the point of entry to the site, these would include measures to minimise dust and emissions including limiting vehicle speeds, no vehicle engine idling when stationary for prolonged periods to reduce exhaust emissions and appropriate locations to deposit wastes.

3.3.2 On-site Transport

The access from the public highway to the booking-in office and the egress from the wheel wash to the public highway would be hard surfaced with concrete or tarmac. The hard surfaced areas would allow sweeping by mechanical sweeper.

A reduced speed limit of 10mph would be imposed, this was selected with regard to the principles outlined in The Quarries Regulations 1999 approved code of practice and IAQM Guidance on the Assessment of Mineral Dust impacts for Planning (May 2016 (v1.1)). Speed limits will be clearly displayed using signage around the site.

HGV may be re-sheeted following waste acceptance checks prior to internal transit if the wastes are identified as potentially dusty or if the weather conditions dictate (e.g. dry/windy conditions). This would be required if instructed at the booking-in office.

The site manager or appointed deputy would be responsible for imposing restrictions or measures on the transport of waste during weather conditions that could generate dust (e.g. dry/windy conditions). These include:

- reducing speed limits on site;
- re-directing site traffic to limit transit on unmade surfaces; and
- damping down roads and operational areas using sprayed water from a mobile bowser.

Mud or other particulates may accumulate on site surfaces through the course of normal operations. Dry sediment may also build up where water ponds after rainfall events. High winds can mobilise accumulated dust or it can be disturbed by passing traffic. Consequently, all site haul

roads and access roads will be regularly maintained and cleaned to prevent the accumulation of mud and dusty material. Haul and access road inspections will be increased if necessary and the frequency of proactive maintenance increased accordingly.

3.3.3 Waste deposit

Site operatives supervising deposit of the waste material will be in constant communication with the booking-in office to advise on the current conditions at the area of deposit. Supervising site operatives will also advise the booking office if dusty loads incorrectly described by the supplier have been accepted.

Waste drop heights are to be minimised with no deposition to take place over high faces. It will be necessary for other site plant such as dozers to be operational at point of waste deposit by HGVs to blade out the material. It may also be necessary to operate excavators or dump trucks during restoration works where more nuanced material management is required e.g. constructing drainage ditches. These vehicles will be subject to the same operational controls to reduce the risk of dust emissions.

The site manager or appointed deputy will be responsible for imposing additional restrictions or measures on the deposit of waste with regard to weather conditions (e.g. dry/windy conditions). These include:

- damping down waste at point of deposit;
- selecting deposit areas that are sheltered from the wind;
- restricting waste types that can be deposited (i.e. not accepting wastes with a high dust generation potential); and
- suspending waste acceptance operations.

The landfill activities would include the infilling of waste using a dozer with blade and restoration works which would include similar plant with the potential addition of an excavator and dump trucks.

3.3.4 Vehicles Leaving the Site

The site entrance road would be hard surfaced (e.g. tarmac or concrete) from the site entrance to the wheel wash (as a minimum). This will allow a distance for vehicles to travel from the wheel wash allowing mud to drop off before leaving site.

3.3.5 Dust suppression water management

Clean water from the base of the quarry is currently pumped into a settlement lagoon prior to discharge in accordance with the existing discharge consent to surface water, some of this clean water may be utilised for the dust suppression and for topping up the vehicle wheelwash.

The public right of way (PROW) footpath is located approximately 20m from the settlement pond and 10m from the proposed new access road. At both locations the PROW is separated by

substantial vegetation growth. In addition, the PROW would be separated from the proposed access road by a screening bund approximately 3m high.

The type of wheelwash proposed for use will be an autonomous system only activated when a vehicle enters. The wheelwash is to be located on the surface of the road and would apply jets of water to the wheels, sides and under-carriage of departing vehicles. Spray would be contained within the unit by large metal screens and all water collected and filtered back through the system. The wheelwash would be located on the exit side of the access/egress road, the side furthest from the PROW. There is very low probability of any clean water spray impacting the PROW.

The hard surface access/egress road may be swept by a standard mechanical road sweeper, the type that commonly operates safely on public highways adjacent to footpaths. It is considered the distance, bund and vegetation cover will result in no spay or water discharge to the PROW.

Internal site roads may be sprayed by mobile water bowsers during dry weather, however the use of water bowsers is likely to be limited to unmade road surfaces within the quarry at a greater distance (> 40m) from the PROW, it is considered that the distance, topography and vegetation separation will result in a very low likelihood of clean water spraying onto the PROW.

The probability of water spraying onto the PROW is considered very low, although potential impact on the PROW resulting from water use will be taken into account during the monitoring of the efficacy of dust control measures.

3.3.6 General Maintenance / House Keeping

All internal roads including the hard surfaces will be inspected daily by site staff and recorded by the site manager.

Road surfaces would be maintained to prevent and repair potholes with repair actioned within 72 hours of identification of damage.

Road surfaces would be cleaned as necessary to minimise the accumulation of mud or dusty materials and reduce the amount of mud or dusty materials tracked off-site. The site manager or appointed deputy will ensure dry dusty waste and dusty haul roads are wetted down to reduce wind whipped dust. Wetting of haul roads would be undertaken as a preventative measure if it is suspected that dust from the haul roads may be a problem.

Any vehicles leaving site would be required to utilise the wheel wash located on the site egress road to remove mud or debris which may cause fugitive dust emissions on the public highway. During wet weather site staff would observe vehicles leaving the site to ensure appropriate use of the wheel wash.

Site staff at the booking-in office and at the tipping face would be vigilant to excessive mud tracked from the site by visiting HGV's and site plant. Any vehicles observed to be carrying mud in their tyres would be directed back through the wheel wash until the wheels are clean before leaving site. Drivers will be reminded as part of the site induction of their responsibility to maintain clean vehicles and not to track mud onto the public highway.

All systems involving water usage for dust management including wheel washes would be operational throughout the infilling and restoration period, and maintained accordingly.

Monitoring and appropriate maintenance of the site access will form part of the EMS for the site.

The site manager (or nominated deputy) will be responsible for assessing predicted meteorological conditions each day, which would determine the type of dust suppression methods required on all or some operational areas of the site.

All personnel employed on site will undertake visual monitoring for dust.

Any problems observed will immediately be reported to the site manager (or nominated deputy) who will be responsible for investigating the cause and implementing any necessary remedial plan.

All plant and wheel wash would be maintained in accordance with the manufacturer's instruction, critical spacers would be retained on site and hire arrangements would be in place for short term replacement of critical items of plant including such as bowser and road sweeper.

Dust generation is not expected to increase materially as the site changes from a working quarry to a landfill. As noted above (Section 2.1), the aggregate processing activity is conducted on a "campaign basis" and hence is infrequent in operation, and of a short duration only. In this regard and based on its location (within the base / and then below ground levels until ~15years, it is considered unlikely that significant dust emissions will be generated from this activity in isolation.

3.4 Remedial Actions for On-Site Dust Emissions

In the unlikely event that unacceptable dust emissions arise from the site, one or more of the following remedial actions will be undertaken:

- Operations identified as generating unacceptable emissions of dust will be reduced or suspended until effective remedial actions have been taken or weather conditions resulting in the fugitive emissions have moderated;
- Additional dust suppression may be employed by spraying water onto affected areas;
- Where practicable on-site vehicle movement routes may be reconsidered with regard to location (i.e. relocating further from the receptor at risk), speed limits may be further reduced, or surfaces and gradients altered;
- All vehicles leaving the site will pass through the wheel wash facility and additional wheel cleaning may be employed if required, such as a mobile pressure washer;
- Waste handling procedures may be altered and waste acceptance procedures reviewed, such as covering dusty wastes upon deposit, or stopping accepting problematic wastes; and,
- Additional quantitative monitoring may be implemented, if complaints are received and the corrective actions above have not resolved the problem, as discussed further in Section 7.

A record relating to the management and monitoring of dust will be maintained in the site log. This record will include the following details: a record of all dust events including date, time and the cause of the problem; a record of all complaints; details on the corrective action taken and any subsequent changes to operational procedures.

4 Potential Pathways

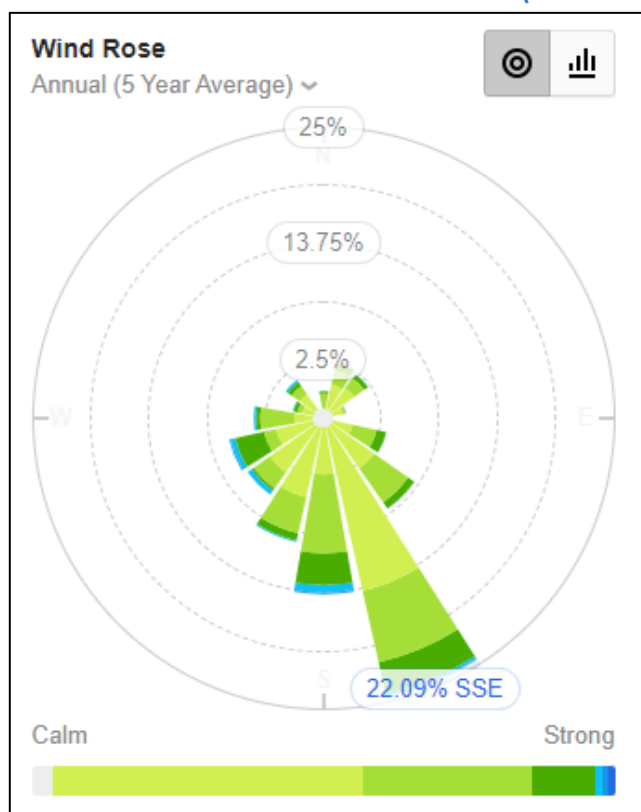
4.1 Airborne Pathways

The potential pathways for dust and particulates to reach sensitive receptors are via the air or over land, namely via the wind. Transit of airborne emissions will be determined by the prevailing wind direction and physical obstructions.

Wind statistics have been referenced from data obtained at nearby Walsall (4.5km to the southwest) for a 5yr period¹ have been used to determine the prevailing wind direction. The frequency the wind blows toward potentially sensitive receptors is detailed in Table 2.

The relevant wind rose is presented below in Figure 1, this data shows a statistical representation of data obtained between 2015 and 2020. Predominant wind direction is from the south-southeast at ~22%.

Figure 1 Walsall Wind Direction Distribution % (2015 – 2020)



4.2 Overland Pathways

Transit of emissions which could travel overland will primarily be limited by the distances to receptors from site and the locations of receptors in relation to the prevailing wind direction and less so by physical barriers such as the trees.

¹ <https://wind.willyweather.co.uk/wm/west-midlands/walsall.html>

5 Potential Sensitive Receptors

5.1 Receptor Locations

When identifying the receptors, the closest and the most sensitive (if different from the closest) have been considered in each direction from the hazard. Account has been taken of the mechanism of transport to the sensitive receptor e.g. proximity to highway access / egress points for mud and wind direction for airborne dust. Recent wind direction from Walsall has been used to establish hazard pathways to adjacent receptors.

Probability of exposure is determined by the distance of the receptor to the site and the likelihood of the hazard reaching the receptor i.e. frequency of prevailing wind in that direction. The probability of exposure is irrespective of the type of hazard presented.

A review of the sensitive receptors has been completed in relation to the site; a list of receptors is shown in Table 2. The nearest sensitive receptors to the site are identified in drawings referenced ESID 2 and ESID 3, of which the most susceptible to dust are the adjacent Swan Pool SSSI and Daw End Canal.

Wind statistics have been referenced from data obtained at nearby Walsall (4.5km to the southwest) for a 5 year period and details provided in Table 2 with reference to the relevant receptors identified in the vicinity of the site. The wind rose is reproduced as Figure 1.

The Environment Agency (Agency) guidance template² for dust management requires consideration to be given to the impact of dust emissions on receptors within a 1km of the site boundary. Although Table 2 identifies potential receptors within a greater distance beyond 1km from the site boundary, these are considered to be at low risk.

A review of other local sources of dust and particulates has been completed in relation to the site and an assessment of each receptor type (in regard to sensitivity to dust) has been summarised in Table 3.

5.2 Receptor Types

Habitats and Watercourses

Receptor types are tabulated in Table 3 for completeness. Greatest sensitivity relates to habitats, residential, recreational, commercial uses, and public amenity.

An Agency 'Nature and Heritage Conservation Screening Report' (ref: EPR/LB3107/A001) was requested and received in March 2022 which identified the Jockey Fields, Swan Pool & Swag and Stubbers Green Bog SSSI within 1km.

² Environment Agency Example Dust and Emissions Management Plan (template supplied by the EA, April 2022), guidance at <https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit>

Table 2 Sensitive Receptors

Receptor No.	Receptor	Receptor Type	Approx. Distance from Site Boundary (m)	Direction from Site	Freq (%) Prevailing Wind Direction
1	Residential properties on Stubbers Green Road	Residential	20	SW	4
2	Residential properties on New Street	Residential	125	NW	9
3	Residential properties on Swan Pool Grove	Residential	130	W	1
4	Residential properties on Brook Meadow Road	Residential	150	W	1
5	Residential properties on Woodhaven	Residential	180	W	1
6	Residential properties on Broadheath Drive	Residential	240	W	1
7	Residential properties on Woodbridge Close	Residential	210	NNW	22
8	Ormiston Shelfield Community Academy	School	850	SE	4
9	St John's CE Primary School	School	1230	NNE	10
10	Leighswood Primary School	School	960	ESE	2
11	St Francis Catholic Primary School	School	520	WNW	5
12	Greenfield Primary School	School	870	W	1
13	Radleys Primary School	School	900	SW	4
14	Greenfields Allotments	Recreation	670	N	14
15	Aldridge Sailing Club	Recreation	200	SW	4
16	Open parkland around The Swag	Recreation	40	W	1
17	Recreation Ground	Recreation	450	W	1
18	Sandown Brickworks	Industrial/Commercial	40	S	2
19	Empire Industrial Estate	Industrial/Commercial	80	E	5
20	Veolia Empire Work (waste treatment)	Industrial/Commercial	15	N	14
21	Highfields South Landfill Site	Industrial/Commercial	250	N	14
22	Vigo Utopia Landfill Site	Industrial/Commercial	210	NNE	10
23	Linley Lodge Industrial Estate	Industrial/Commercial	590	SSW	4
24	Mercian Weldcraft Factory	Industrial/Commercial	280	SSE	0
25	Ibstock Brick Atlas brickworks	Industrial/Commercial	430	SSE	0
26	Ibstock Brick Atlas open quarry	Industrial/Commercial	410	S	2
27	Daw End Branch	Canal	15	E	5
28	Swan Pool	Pond	10	W	1
29	The Swag	Lake	75	W	1
30	Unnamed pond	Pond	90	NNW	22
31	Brick Kiln Pool	Pond	200	N	14
32	Unnamed pond	Pond	220	S	2
33	Unnamed pond	Pond	500	WSW	2
34	Unnamed pond	Pond	210	SSE	0
35	Unnamed pond	Pond	330	NE	7
36	On-site Drain - Highfield South	Site Drainage	320	N	14
37	Unnamed drain	watercourse	5	W	1
38	Unnamed drain	watercourse	20	NW	9
39	Unnamed drain	watercourse	300	W	1
40	Unnamed drain	watercourse	200	NNW	22
41	Unnamed drain	watercourse	50	S	2
42	Swan Pool and The Swag SSSI	SSSI	0	W	1
43	Stubbers Green Bog SSSI	SSSI	50	S	2

Receptor No.	Receptor	Receptor Type	Approx. Distance from Site Boundary (m)	Direction from Site	Freq (%) Prevailing Wind Direction
44	Jockey Fields SSSI	SSSI	340	N	14
45	Daw End Railway Cutting SSSI	SSSI	1250	SSW	4
46	Dumblederry Lane LWS	LWS	220	SW	4
47	Anchor Brook Valley LWS	LWS	70	S	2
48	Daw End Branch Canal LWS	LWS	15	E	5
49	Stubbers Green LWS	LWS	15	W	1
50	Stubbers Green Road	Road	20	W	1
51	Barns Lane	Road	50	SW	4
52	Unnamed access road to Veolia Site	Road	20	ENE	8
53	Empire Close	Road	140	E	5

Frequency stats from [Walsall Wood Wind Forecast, West Midlands WS9 9 - WillyWeather](#). The prevailing wind direction is the direction / frequency towards the receptor.

Table 3 Types of Receptors

Receptor Type	Sensitivity to Dust
Habitats / Watercourses	High
Residential	High
Recreational	High
Commercial	High
Public Amenity	High
Public Highways / Railways / Footpaths	Moderate
Industrial / Agricultural	Low to Moderate

Local Wildlife Sites (LWS) within 200m include Dumblederry Lane, Anchor Brook Valley, Daw End Branch Canal and Stubbers Green. Protected species include “floating leaved plantain” and protected habitats include Deciduous Woodland Fens and floodplain grazing marsh.

The Screening Report also highlighted that there are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) or RAMSAR areas located near the Site. The Screening Report is attached to the accompanying Environmental Risk Assessment at Appendix A.

Additionally, it is noted that none of the identified receptors are located downwind of the significant prevailing wind direction which is from the south, southeast (Figure 1). Infilling activities are predominantly “below ground level” and are not expected to be significantly different from the current quarry extraction operations that have been undertaken at site (and continue locally) since the late 1880’s.

Residential, recreational, industrial and commercial premises

The potential emissions from the site are likely to have a similar impact on persons occupying residential, recreational or commercial premises. Exposure of emissions to persons at industrial / agricultural or commercial premises may be lower as they are more likely to be inside during the working day or they may be transient visitors to the premises. Certain industrial / agricultural premises may generate similar emissions similar to the site and the employees may be desensitised as a result.

Industrial activities (quarrying) and landfilling locally is significant (see further details in report 5430-BLP-R-003-02).

Fine dust particulates may be able to travel further than larger particles that may settle on surfaces nearby. Finer particulates may elicit an unpleasant or harmful respiratory effect from sensitive individuals, whilst settlement of dust may be unsightly or damaging by smothering to sensitive flora. Dust is less likely to affect internal spaces; however a sustained source of fine suspended particulates may eventually permeate inside buildings.

The proposed permitted activities are unlikely to generate dust in such sufficient quantities that a plume would be visible beyond the site boundary. The proposed working hours will be similar to surrounding business and may affect persons in residential housing, but have little effect on persons in businesses operating to normal working hours e.g. 0900 to 1700.

The closest residential properties are on Stubbers Green Road (nearest at a distance of ~20m) from the site boundary (~40m from the infill) however site activities are not expected to approach ground surface for some 15 years, additionally there are an extensive existing barrier of established trees in this area of the site. Significantly however, the prevailing wind only blows towards the receptor at 4% (based on a 5 year average). For conservatism this management plan assumes the residences are occupied during the operational hours of the site by members of the public most sensitive to emissions from the site.

Industrial premises are the most abundant (predominantly to the east, beyond the Daw End Canal), uses include haulage yards, builders merchants, aggregate processing, brickworks, landfills, container storage and industrial / engineering units.

It is likely that the combination of waste type and operational controls, distance to the receptors and the prevailing wind direction prevent most potentially harmful emissions from reaching receptors. As such these receptors noted above are considered unlikely to be sensitive to dust emissions associated with the site.

Highways, railways and footpaths

The transitory nature of highways, railways or footpaths means receptors using those locations will be exposed to potential emissions from the site for shorter (albeit variable) periods of time than residences or businesses. Pedestrians will have longer and more direct exposure to emissions compared to vehicle users who are less likely to be exposed to emissions and for significantly shorter periods of time.

Walsall Road to the north, the B4152 to the east (beyond the Leighswood Industrial Estate) and the adjacent Stubbers Green Road (directly to the west) are all located within 1km.

The closest of these receptors is Stubbers Green Road, which is rarely downwind from the site and pedestrian usage is considered infrequent and minimal. All of these road receptors are sources of dust and particulates in their own right and are therefore considered unlikely to be sensitive to dust emissions associated with the site. The nearest railway is located 1.4km to the south, and as such is not considered to be at risk from site dust emissions.

6 Dust Risk Assessment

6.1 Site Dust Emissions

The risk potential to each receptor as identified in Section 5 (Table 3) and shown on drawing referenced ESID 2 from dust potentially generated from the site is presented in Table 4 below.

This table evaluates the unmitigated risk to sensitive receptors from uncontrolled dust emissions and the control measures to be implemented at the site in order to minimise and mitigate this risk, producing a revised residual risk to receptors.

With appropriate risk management measures in place, the overall risk from dust generated from site is considered “low”. As a result of the processing activity only operating on a campaign basis (and being located at the base of the void form some 15 – 18 years, the effects from windblown emissions are envisaged to be minimal and not detrimental to sensitive receptors.

Table 4 Dust Fugitive Emission Risk Assessment and Management Plan

Hazard / Pathway	Receptor				Probability of exposure	Unmitigated Consequence	Initial Risk	Risk Management	Mitigated Risk
	No.	Dist.	Direc.	Freq.					
Dust through air from: vehicle movements or deposit of wastes Aggregate Processing - (screening & crushing)	1	20	SW	4	High - distance from site	High - residential receptor, low prevailing wind frequency	Medium	No excessively dusty wastes to be accepted at the site. (Infilling is predominantly below ground surface,) which further mitigates against emissions On site vehicle speed limit enforced to ensure that vehicle movements do not generate excessive dust. Dampening of site roads/surfaces as necessary using a tanker during dry periods. Weighbridge will conduct assessment of waste inputs and impose controls and restriction on potentially dusty waste (e.g. rapid cover following placement, refusal to tip). Daily visual inspection by appropriate site staff at suitable locations taking account of the prevailing wind direction.	Low
	2	125	NW	9	High - proximity to site	High - residential receptor	Medium		
	3	130	W	1	High - proximity to site	High - residential receptor, low prevailing wind frequency	Medium		
	4	150	W	1	High - proximity to site	High - residential receptor, low prevailing wind frequency	Medium		
	5	180	W	1	High - proximity to site	High - residential receptor, low prevailing wind frequency	Medium		
	6	240	W	1	Medium - distance from site	High - residential receptor, low prevailing wind frequency	Medium		
	7	210	NNW	22	Medium - distance from site	High - residential receptor	Medium		
	8	850	SE	4	Medium - distance from site	High - school, low prevailing wind frequency	Medium		
	9	1230	NNE	10	Medium - distance from site	High - school receptor	Medium		
	10	960	ESE	2	Medium - distance from site	High - school receptor, low prevailing wind frequency	Medium		
	11	520	WNW	5	Medium - distance from site	High - school receptor, low prevailing wind frequency	Medium		
	12	870	W	1	Medium - distance from site	High - school receptor, low prevailing wind frequency	Medium		
	13	900	SW	4	Medium - proximity to site	Low - school receptor, low prevailing wind frequency	Low		
	14	670	N	14	Medium - distance from site	Low - open space, transient odour annoyance	Low		

Hazard / Pathway	Receptor				Probability of exposure	Unmitigated Consequence	Initial Risk	Risk Management	Mitigated Risk
	No.	Dist.	Direc.	Freq.					
	15	200	SW	4	Medium - distance from site	Low - open space, low prevailing wind frequency	Low	<p><u>Twice daily visual inspection recommended in adverse weather conditions at the Site.</u></p> <p>All vehicles will use wheel wash to prevent mud / dust being trailed onto adjacent roads and creating a hazard / nuisance.</p> <p>A street sweeper will regularly clean site roads of any mud trailed on from site vehicles, this will limit further dust generation.</p> <p>Processing / screening operations are operated on a campaign basis to limit both duration and significance of any effects. Additional visual observations / checking during the activity to ensure no significant dust generated from the process - operation to be halted if excessively windy and rescheduled to be undertaken when conditions are more favourable.</p> <p>Perimeter checks (particularly at the Daw End canal and Swan Pool SSSI during operation are encouraged).</p>	
	16	40	W	1	High - distance from site	Low - open land, low prevailing wind frequency	Low		
	17	450	W	1	Low - distance from site	Low - open land, low prevailing wind frequency	Low		
	18	40	S	2	High - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	19	80	E	5	High - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	20	15	N	14	High - distance from site	Low - industrial facility, landfill	Low		
	21	250	N	14	Medium - distance from site	Low - industrial facility, landfill	Low		
	22	210	NNE	10	Medium - distance from site	Low - industrial facility, landfill	Low		
	23	590	SSW	4	Medium - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	24	280	SSE	0	Medium - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	25	430	SSE	0	Medium - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	26	410	S	2	Medium - distance from site	Low - industrial facility, low prevailing wind frequency	Low		
	27	15	E	5	High - distance from site	Low - open land, water, low prevailing wind frequency	Low		
	28	10	W	1	High - distance from site	Low - open land, water, low prevailing wind frequency	Low		

Hazard / Pathway	Receptor				Probability of exposure	Unmitigated Consequence	Initial Risk	Risk Management	Mitigated Risk
	No.	Dist.	Direc.	Freq.					
	29	75	W	1	High - distance from site	Low – open land, water, low prevailing wind frequency	Low		
	30	90	NNW	22	High - distance from site	Low – open land, water	Low		
	31	200	N	14	Medium - distance from site	Low – open land, water	Low		
	32	220	S	2	Medium - distance from site	Low – open land, water	Low		
	33	500	WSW	2	Medium - distance from site	Low – open land, water	Low		
	34	210	SSE	0	Medium - distance from site	Low – open land, water	Low		
	35	330	NE	7	Medium - distance from site	Low – open land, water	Low		
	36	320	N	14	Medium – distance from site	Low – landfill site drainage	Low		
	37	5	W	1	High – distance from site	Low – drainage / ditch, low prevailing wind frequency	Low		
	38	20	NW	9	High – distance from site	Low – drainage / ditch	Low		
	39	300	W	1	Medium – distance from site	Low – drainage / ditch, low prevailing wind frequency	Low		
	40	200	NNW	22	Medium – distance from site	Low – drainage / ditch	Low		
	41	50	S	2	High – distance from site	Low – drainage / ditch, low wind frequency	Low		
	42	0	W	1	High - distance from site	Low – open land SSSI, water, low prevailing wind frequency	Low		

Hazard / Pathway	Receptor				Probability of exposure	Unmitigated Consequence	Initial Risk	Risk Management	Mitigated Risk
	No.	Dist.	Direc.	Freq.					
	43	50	S	2	High - distance from site	Low – open land SSSI, water, low prevailing wind frequency	Low		
	44	340	N	14	Medium - distance from site	Low – open land SSSI	Low		
	45	1250	SSW	4	Low - distance from site	Low – open land, low prevailing wind frequency	Low		
	46	220	SW	4	Medium - distance from site	Low – open land LWS, low prevailing wind frequency	Low		
	47	70	S	2	High - distance from site	Low – open land LWS, low prevailing wind frequency	Low		
	48	15	E	5	High - distance from site	Low – open land LWS, low prevailing wind frequency	Low		
	49	15	W	1	High - distance from site	Low – open land LWS, low prevailing wind frequency	Low		
	50	20	W	1	High - distance from site	Low – road, low prevailing wind frequency	Low		
	51	50	SW	4	High - distance from site	Low – road, low prevailing wind frequency	Low		
	52	20	ENE	8	High - distance from site	Low – road	Low		
	53	140	E	5	Medium - distance from site	Low – road, low prevailing wind frequency	Low		

7 Monitoring

7.1 Visual Monitoring

Visually monitoring will occur twice daily for dust by the site manager and continuously by the operatives in the course of their duties to establish whether any dust is likely to leave the site. This will include dust arising from vehicles arriving at site.

Records will be completed for each inspection and all site staff would be responsible for reporting dust and particulate problems as soon as practicable to the site manager or the next level of management if the site manager is not available.

The following locations will be targeted for dust monitoring at the frequency above with additional checks throughout the day around the SSSI:

- Weighbridge or waste reception area (continuous monitoring of vehicles);
- Point of waste deposition;
- Around the Swan Pool and Swag SSSI; and,
- Subject to prevailing wind direction (i.e. up and down wind), appropriate areas of the site perimeter.

The following information will be recorded during each round of monitoring:

- Name of assessor and position at facility e.g. weighbridge clerk etc.;
- Nature of any problem identified including location, source, date, time, duration, prevailing weather conditions and likely cause;
- On-site activities and operational condition at the time of the monitoring visit (this should include any of the abnormal events detailed in Section 7.8 below);
- Records of the likely source of any dust, even if it is not from the facility; and
- Details on the corrective action taken, realistic timeframes for remedial works and any subsequent changes to monitoring and operational procedures.

The Site Manager will be informed immediately of any findings of dust attributed to the site and will authorise remedial measures to be taken.

7.2 Quantitative Monitoring

In addition to the visual monitoring, quantitative monitoring through the use of deposited dust 'frisbee' gauges would also be undertaken on a quarterly basis for the first 12 months following issue of the environmental permit. Monitoring will be undertaken at three points located (precise locations to be agreed with the Environment Agency during permit determination) as follows:

Table 5 Quantitative Dust Monitoring Locations

Ref.	Location	Receptor	Purpose
D1	Top of the quarry on northeastern boundary between the proposed area of restoration fill and the canal towpath, where the current haul road approaches the top of the quarry.	Canal and Tow Path	To measure the current background dust levels associated with the haulage of extracted mineral and change resulting from the restoration fill activities.

D2	Top of the quarry between the current silt lagoon and proposed location of the new access road.	Swan Pool SSSI and PROW	To measure the dust level associated with vehicle movements on the new access.
D3	Top of the quarry along the southern boundary between the area of restoration and the property on Stubbers Green Road.	Property on Stubbers Green Road.	To measure the dust levels associated with the current extractive and manufacturing operations and change as result of the restoration of the activities.

Deposited and directional dust is monitored using ‘frisbee’ deposition gauges in accordance with the method specified in the Environment Agency guidance document M17. Each gauge would be analysed for total dust mass (mg), deposition rate (mg/m²/day), directional dust (8 compass points), and particulate characterisation (e.g. carbonaceous matter, silicon rich, general dirt, calcium rich etc.).

The site manager will be informed immediately of any findings of dust attributed to the site and will authorise remedial measures to be taken.

There is at present no national UK set limit for dust, Environment Agency guidance³ states gravimetric dustfall monitoring results generated by ‘frisbee’ gauges at sensitive receptors are usually compared with a “complaints likely” dust guideline of 200 mg/m²/day.

Directional dust deposition uses vertically orientated adhesive (sticky) strips. The degree of soiling of the exposed sticky strip is measured using a reflectance meter and expressed as the percentage Effective Area Coverage (%EAC) per day. At present there is no national UK set limit, Environment Agency guidance³ states it is common for monitoring programmes to use the 2.0% EAC per day “probable complaints” threshold as a guideline limit.

These parameters will be used to inform dust control measures and the need to extend monitoring for greater than the proposed initial 12 months and the need for any additional monitoring locations.

Dust suppression measures are proposed and quantitative dust monitoring would be undertaken and provide a measure of efficacy of dust control and consequently reflective of PM₁₀ levels, it therefore not proposed to undertake additional PM₁₀ monitoring. The site is not located within a PM₁₀ Air Quality Management Area (AQMA).

8 Community Engagement, Reporting and Contingencies

8.1 Overview

Prevention will be viewed as the most effective means of controlling dust before an adverse impact occurs from uncontrolled emissions. The Source → Pathway → Receptor model determined above allows for the identification of the critical control points where dust can arise, how it can travel to a receptor and the likely impact.

³ [NEW M17 TEXT \(publishing.service.gov.uk\)](#)

The performance of a dust management system will ultimately be judged by the impact of the landfill on the receptors. Should complaints be received, a procedure will be in place to effectively deal with the issue in a sensitive, efficient and auditable manner.

The controls for each potential dust source are detailed in previous sections of this report. The management of those controls will be based on the on-going monitoring regime on site. The monitoring regime can work as an early warning system against potential problems (e.g. meteorological monitoring) or a diagnostic tool to establish the cause of a dust event (e.g. perimeter monitoring).

8.2 Complaints Process

Any complaints received at the waste facility or via the Regulatory Bodies including the Agency and Local Authority, will be recorded using the form in Appendix A.

This will instigate further visual dust monitoring at the location of the complaint and on-site to determine the extent and location of the dust generating materials and/or process will be identified. Where possible, as much information and detail about the complaint will be recorded, whether this is from the relevant authority or a complaint direct to the site. This information will assist in the investigation and determining the source of the dust e.g. differentiating between potential dust from the site or other off-site activities.

All complaints and queries will be logged in accordance within the environmental management system (EMS) as soon as is practicably possible. All complaints logged will be subject to investigation, and complainants responded to within 48 hours of receipt, where possible. All responses will be through trained and experienced staff.

In the event that a substantiated dust complaint is received arising from the facility, additional monitoring will be undertaken at the nearest sensitive receptors. The person conducting the survey shall make note of any dust at each monitoring point including those not of obvious waste facility site origin.

Complaints regarding dust from the facility will be investigated in accordance with the protocol, and appropriate records maintained which may include:

- Complaints received including name and contact details of complainant (if known), and complainants description of the dust;
- Nature of problem including date, time, duration, prevailing weather conditions and cause of the problem;
- On-site activities and operational conditions at the time of the complaint;
- Records of the likely source of the dust, even if it is clearly not from the facility;
- Details on the corrective action taken and any subsequent changes to monitoring and operational procedures; and,
- The Agency will be proactively informed by the Operator of the complaint and the Operator will confirm to the best of its knowledge the information described above.

The Operator will ensure that the complainant has all the relevant contact details of the site (i.e. the Site Manager) and the officer responsible at the Agency. The operator will be in regular contact with the complainant and the Agency whilst the cause of the dust is being investigated and remediated.

An evaluation of the effectiveness of the techniques used will be carried out on completion of any remedial measures, or if the complaints persist. Records of the above will be retained by site for future reference.

8.3 Means of Contact

The facility will be readily contactable to outside organisations and to members of the public. The site signage board (placed in a readily visible location) will contain the necessary contact details for both the site operations and Agency. The company website also contains the necessary contact details for the site.

<https://www.boothventures.co.uk/>

Any complaints received directly to site will be notified to the Agency. Should an off-site issue arise, therefore, the complainant has a readily available means of getting in touch with the Operator.

8.4 Complaints Screening

As part of each dust complaint received, they will be objectively assessed against the wider environment to ensure that the source of the emission is traced back to the correct source. It is essential that the source is correctly identified in order that mitigating measures can be applied effectively and correctly. The complaint will also be assessed against previous records to place the nature of the complaint into context.

If patterns in complaints emerge, community groups or individuals (subject to their agreement) will be called upon to act as an additional dust monitoring resource.

8.5 Complaints Investigation

In the event that dust is found to be causing a problem from the site facility, as determined and confirmed by investigation into off-site complaints, or during routine monitoring, measures will be taken to determine the source of this dust and the following courses of action as detailed below shall be taken to ascertain if the dust is coming from the facility;

- Additional dust monitoring as detailed above to identify the extent of the dust emission and potential cause for the dust i.e. waste material and/or activity;
- Examination of the operational activities at the time of the dust complaint;
- Examination of the meteorological conditions at the time of the complaint;
- Carry out a review of the operational procedure and controls and instigate any control measures immediately following identification of the problem; and,
- Further monitoring will be carried out to ensure the issue has been addressed and to monitor the effectiveness of any control measures undertaken.

It is recognised that whilst complainants are encouraged to report valid complaints to the regulatory bodies, complaints that are received/submitted directly to the site are able to be investigated more rapidly. As a result, complaints reported directly can be substantiated, reviewed and actioned quicker. With the complainant still able to report the complaint to the regulatory bodies after, should it be necessary.

Nevertheless all complaints will be investigated.

8.6 Contingency and Emergency Plans

In the event that dust is proven to be from the site and found to be causing a problem, as determined by the investigation of off-site complaints or during routine on-site monitoring, action will be taken to determine the source and the following courses of action. Control and mitigation measures for each stage of the waste management process are as described in Section 3 and summarised in Table 4.

8.7 Abnormal Events

This Dust and Emissions Management Plan assumes that the facility will be running under expected operational conditions. There are however circumstances that could result in a dust emission from the site if not appropriately considered in advance, discussed below.

Strong Winds

Daily visual inspection of the site infrastructure will be undertaken and recorded. Additional inspection for damage resulting from high wind events will also be undertaken and contingency actions identified below considered should high wind conditions result in escape of significant dust emissions.

Hot / Dry Conditions

The warmer the weather the greater the potential for wastes to become dry and dusty, particularly when stored outside and when agitated. Daily inspections will be undertaken of the waste to ensure waste delivered to the site is not dusty and stockpiles of waste are kept to an operational minimum and wetted down if required to reduce dust emissions.

During prolonged periods of hot weather inspection frequency will be increased and the surface area of stored waste will be kept to a minimum.

Implementation of the Contingency plan and / or Emergency Plan

Unavailability should only take place due to unscheduled maintenance, emergency situations and for Health and Safety reasons such as a fire at the site (although considered highly unlikely). In such cases the site staff will initially inform the Site Manager who will in turn inform service managers, the Local Authority and the Agency. Site staff will implement measures to store or divert wastes as required.

Operator's Experience with Contingency / Emergency Situations

The operator has a policy of continuous review of emergency and contingency procedures which helps improve procedures across the operator's operations.

Review and Update of Contingency and Emergency Plans

The Contingency Plan and Emergency Plan will be reviewed following any incident where they have had to be followed. They will be updated as necessary with any lessons learned.

8.8 Records and Reviews

Records relating to the management and monitoring of dust will be maintained as necessary and will include the following details:

- The results of inspections and visual monitoring carried out by installation personnel;
- Weather conditions including atmospheric pressure, wind speed and wind direction;
- Problems including date, time, duration, prevailing weather conditions and cause of the problem;
- Complaints received including name and address of the complainant; and
- Details of the corrective action taken, and any subsequent changes to operational procedures.

The Dust and Emissions Management Plan will be reviewed on a periodic basis with the scheduled review of the site's Environmental Management System or with every major decrease, or alteration to the dust generated at site (i.e. a change to dust source term, pathway or receptor).

8.9 Communication Tools

Stakeholders will typically include the Local Authority, the Agency, Parish Councils and members of the local community. Other stakeholders may include local businesses and/or householders should the facility be deemed to impact upon them.

In addition, and as covered within the complaints section, contact details will be made available so that any complaints can be directed to site and an investigation undertaken immediately.

8.10 Remedial Actions for On-Site Dust Emissions

In the unlikely event that unacceptable dust emissions arise from the site, one or more of the following remedial actions would be undertaken:

- Operations identified as generating unacceptable emissions of dust will be reduced or suspended until effective remedial actions have been taken or weather conditions resulting in the fugitive emissions have moderated;
- Additional dust suppression may be employed by spraying water onto affected areas;
- Where practicable on-site vehicle movement routes may be reconsidered with regard to location (i.e. relocating further from the receptor at risk), speed limits may be further reduced, or surfaces and gradients altered;
- All vehicles leaving the site will pass through the wheel wash facility and additional wheel cleaning may be employed if required, such as a mobile pressure washer;
- Waste handling procedures may be altered and waste acceptance procedures reviewed, such as covering dusty wastes upon deposit, or stopping accepting problematic wastes; and,
- Additional quantitative monitoring may be implemented, if complaints are.

A record relating to the management and monitoring of dust will be maintained in the site log. This record will include the following details: a record of all dust events including date, time and the cause of the problem; a record of all complaints; details on the corrective action taken and any subsequent changes to operational procedures.

Appendix A – Dust Complaint Form

Customer Details	
Customer Name	
Address	
Postcode	
Customer Contact Details	
Tel	
Email	
Date	
Complaint Ref Number	
Complaint Details	
Investigation Details	
Investigation carried out by	
Position	
Date & Time investigation carried out	
Weather conditions	
Wind direction and speed	
Investigation findings	
Feedback given to Environment Agency and / or local authority	
Date feedback given	
Feedback given to public	
Date feedback given	
Review and Improve	
Improvements needed to prevent a reoccurrence	
Proposed date for completion of the improvements	
Actual date for completion	
If different insert reason for delay	
Does the dust and emissions management plan need to be updated	
Date that the dust and emissions management plan was updated	
Closure	
Site Manager review date	
Site Manager signature to confirm no further action required	



IRELAND | UK | UAE | BAHRAIN | KSA

BYRNELOOBY

AN **ayesa** COMPANY

www.byrnelooby.com

www.ayesa.com/en/

Email: info@byrnelooby.com